UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/734,324	12/01/2000	Robert P. Enns	Juniper-10 (JNP-0044)	3838

26479 7590 04/08/2008	EXAMINER	
STRAUB & POKOTYLO	DUONG, THOMAS	
620 TINTON AVENUE		
BLDG. B, 2ND FLOOR	ART UNIT	PAPER NUMBER
TINTON FALLS, NJ 07724	2145	

MAIL DATE	DELIVERY MODE
04/08/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	09/734,324	ENNS, ROBERT P.
	Examiner	**Art Unit**	
	THOMAS DUONG	2145	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>11 December 2006</u>.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>2-4, 6-11, 13-20, and 22-33</u> is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>2-4, 6-11, 13-20, and 22-33</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>23 August 2004</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All   b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This office action is in response to the applicant's Appeal Brief filed on December 11, 2006. *Claims 2-4, 6-11, 13-20, and 22-33* are presented for further consideration and examination.

2. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

3. In view of the appeal brief filed on December 11, 2006, PROSECUTION IS HEREBY REOPENED. New grounds of rejection are set forth below.

Response to Argument

4. Applicant's argument, see pg.18-19, pg.23-26, filed on December 11, 2006, with respect to *claims 10, 13, 22, 25-28, and 33* have been fully considered and are persuasive. The finality of previous rejection is withdrawn.

Election/Restrictions

5. *Claims 2-4, 6-11, 13-20, and 22-33* are directed to an allowable product. Pursuant to the procedures set forth in MPEP § 821.04(B), *claims 2-4, 6-9, 11, 14-20, 23-24, and 29-32*, directed to the process of making or using an allowable product, previously withdrawn

from consideration as a result of a restriction requirement, are hereby rejoined and fully examined for patentability under 37 CFR 1.104.

Because all claims previously withdrawn from consideration under 37 CFR 1.142 have been rejoined, **the restriction requirement as set forth in the Office action mailed on January 23, 2006 is hereby withdrawn**. In view of the withdrawal of the restriction requirement as to the rejoined inventions, applicant(s) are advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application. Once the restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. See *In re Ziegler*, 443 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP § 804.01.

6.   The petition filed 9/5/06 is treated as a request for reconsideration, the restriction mailed 1/23/06 is hereby withdrawn.

Claim Rejections - 35 USC § 112

7.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8.   *Claim 19* is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contains subject matter, which is not described in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. *Claim 19* discloses, *"wherein the*

act of accepting at least a part of the first set of configuration information for the data

forwarding device is performed <u>by accessing a storage device of the data forwarding</u>

<u>device,</u> wherein the act of accepting at least a part of the second set of configuration

information for the data forwarding device is performed <u>by accessing a storage device of</u>

<u>the data forwarding device,</u> and wherein the act of determining differences, if any,

between the first set of configuration information for the data forwarding device, and the

second set of configuration information for the data forwarding device, is performed by a

component of the data forwarding device."; however, *claim 14,* which *claim 19* is

depended upon, discloses *"accepting at least a part of a first set of configuration*

information for a data forwarding device, <u>wherein the first set of configuration information</u>

<u>has not been saved on the data forwarding device as a committed configuration, and</u>

<u>wherein no copied instance of the first set of configuration information has been saved</u>

<u>on the data forwarding device as a committed configuration."</u> Therefore, *claim 19*

contradicts itself and is non-enabled. Please clarify the language of the claim.

Claim Rejections - 35 USC § 102

9.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by
another filed in the United States before the invention by the applicant for patent or (2) a patent
granted on an application for patent by another filed in the United States before the invention by the
applicant for patent, except that an international application filed under the treaty defined in section
351(a) shall have the effects for purposes of this subsection of an application filed in the United States
only if the international application designated the United States and was published under Article 21(2)
of such treaty in the English language.

10.   *Claims 23-24* are rejected under 35 U.S.C. 102(e) as being anticipated by Zavalkovsky

et al. (US006959332B1).

11.   With regard to _claim 23_, Zavalkovsky discloses,

- _receiving with a data forwarding device, a first set of configuration information for_

   the data forwarding device, wherein the first set of configuration information has

   not yet been committed on the data forwarding device, and wherein no copied

   instance of the first set of configuration information has been saved on the data

   forwarding device as a committed configuration; (Zavalkovsky, col.1, line 6 –

   col.18, line 55)

   Zavalkovsky discloses, _"As a result, an initial set of basic commands,_

   implementing all abstract policies defined by the user, is created and stored, as

   shown by block 314. Block 314 also preferably involves assigning a state value

   of each basic command object in the set, when each basic command object is

   created. Basic commands in the final list that are created from the abstract

   policies that were received in the Abstract Policy Translation phase 302 are

   assigned the state value "DO."" (Zavalkovsky, col.7, lines 45-53). Hence,

   Zavalkovsky teaches of creating and stored (i.e., Applicant's accepting) the initial

   set of basic commands (i.e., Applicant's at least a part of a set of candidate

   configuration information) implementing all abstract policies defined by the user

   for the type of the network device (e.g., Cisco router) (i.e., Applicant's data

   forwarding device).

- _receiving with the data forwarding device, a second set of configuration_

   information for the data forwarding device; (Zavalkovsky, col.1, line 6 – col.18,

   line 55)

Zavalkovsky discloses, *"In block 316, the current configuration of each device is received and analyzed. Current device configuration information may be obtained using a special CLI command (e.g., "show running config" on a Cisco router), or by other conventional means, such as device discovery processes that use one or more SNMP query messages to obtain MIB variable values. In block 318, based on the current device configuration information received from the device, the process determines one or more specific CLI commands that would create such configuration if sent to and executed by the operating system of the device. As a result, a list of CLI commands for the current device configuration is created and stored"* (Zavalkovsky, col.7, lines 56-67). Hence, Zavalkovsky teaches of receiving (i.e., Applicant's accepting) the current configuration (i.e., Applicant's at least a part of a selected set of configuration information) of each device (e.g., Cisco router) (i.e., Applicant's data forwarding device).

- *determining with the data forwarding device, differences between the first and second sets of configuration information.* (Zavalkovsky, col.1, line 6 – col.18, line 55)

Zavalkovsky discloses, *"Specifically, as shown by block 324, in the Merging and Aggregation phase 306, the two sets of basic commands that were created in the previous phases are compared to determine a minimal set of basic commands that will result in a new device configuration that both retains features of the current device configuration, and implements the abstract policy that was received in the Abstract Policy Translation phase 302. The initial list of basic commands and the list of uploaded basic commands are evaluated and merged, resulting in creating and storing a final list of basic commands, as shown by block*

326. During the process of merging and evaluation in block 324, the basic

commands from the two sets are compared and their states are changed

according to the following rule" (Zavalkovsky, col.8, lines 22-35). Hence,

Zavalkovsky teaches of comparing (i.e., Applicant's determining differences) to

determine a minimal set of basic commands between the two sets of basic

commands (e.g., the current configuration and the initial set of basic commands)

(i.e., Applicant's at least a part of a selected set of configuration information and

at least a part of a set of candidate configuration information).

12.   With regard to *claim 24*, Zavalkovsky discloses,

- *wherein the data forwarding device is a router.* (Zavalkovsky, col.1, line 6 –

  col.18, line 55)   .

  Zavalkovsky discloses, *"In block 316, the current·configuration of each device is*

  received and analyzed. Current device configuration information may be obtained

  using a special CLI command (e.g., "show running config" on a Cisco router), or

  by other conventional means, such as device discovery processes that use one

  or more SNMP query messages to obtain MIB variable values. In block 318,

  based on the current device configuration information received from the device,

  the process determines one or more specific CLI commands that would create

  such configuration if sent to and executed by the operating system of the device.

  As a result, a list of CLI commands for the current device configuration is created

  and stored" (Zavalkovsky, col.7, lines 56-67).

Claim Rejections - 35 USC § 103

13.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set
forth in section 102 of this title, if the differences between the subject matter sought to be patented and
the prior art are such that the subject matter as a whole would have been obvious at the time the
invention was made to a person having ordinary skill in the art to which said subject matter pertains.
Patentability shall not be negatived by the manner in which the invention was made.

14.   *Claims 2-4, 6-8, 11, 14-18, 20, and 29-32* are rejected under 35 U.S.C. 103(a) as being

unpatentable over Zavalkovsky et al. (US006959332B1) and in view of Harvey et al.

(US007054924B1).

15.   With regard to *claims 4, 11, and 14-16*, Zavalkovsky discloses,

- *accepting at least a part of a selected set of configuration information for a data*

  forwarding device; (Zavalkovsky, col.1, line 6 – col.18, line 55)

  Zavalkovsky discloses, *"In block 316, the current configuration of each device is*

  received and analyzed. Current device configuration information may be obtained

  using a special CLI command (e.g., "show running config" on a Cisco router), or

  by other conventional means, such as device discovery processes that use one

  or more SNMP query messages to obtain MIB variable values. In block 318,

  based on the current device configuration information received from the device,

  the process determines one or more specific CLI commands that would create

  such configuration if sent to and executed by the operating system of the device.

  As a result, a list of CLI commands for the current device configuration is created

  and stored" (Zavalkovsky, col.7, lines 56-67). Hence, Zavalkovsky teaches of

  receiving (i.e., Applicant's accepting) the current configuration (i.e., Applicant's at

least a part of a selected set of configuration information) of each device (e.g.,

Cisco router) (i.e., Applicant's data forwarding device).

- *accepting at least a part of a set of candidate configuration information for the*

  data forwarding device; and (Zavalkovsky, col.1, line 6 – col.18, line 55)

  Zavalkovsky discloses, *"As a result, an initial set of basic commands,*

  implementing all abstract policies defined by the user, is created and stored, as

  shown by block 314. Block 314 also preferably involves assigning a state value

  of each basic command object in the set, when each basic command object is

  created. Basic commands in the final list that are created from the abstract

  policies that were received in the Abstract Policy Translation phase 302 are

  assigned the state value "DO."" (Zavalkovsky, col.7, lines 45-53). Hence,

  Zavalkovsky teaches of creating and stored (i.e., Applicant's accepting) the initial

  set of basic commands (i.e., Applicant's at least a part of a set of candidate

  configuration information) implementing all abstract policies defined by the user

  for the type of the network device (e.g., Cisco router) (i.e., Applicant's data

  forwarding device).

- *determining differences, if any, between the at least a part of the set of candidate*

  configuration information for the data forwarding device, and the at least a part of

  the selected set of configuration information for the data forwarding device,

  (Zavalkovsky, col.1, line 6 – col.18, line 55)

  Zavalkovsky discloses, *"Specifically, as shown by block 324, in the Merging and*

  Aggregation phase 306, the two sets of basic commands that were created in the

  previous phases are compared to determine a minimal set of basic commands

  that will result in a new device configuration that both retains features of the

current device configuration, and implements the abstract policy that was

received in the Abstract Policy Translation phase 302. The initial list of basic

commands and the list of uploaded basic commands are evaluated and merged,

resulting in creating and storing a final list of basic commands, as shown by block

326. During the process of merging and evaluation in block 324, the basic

commands from the two sets are compared and their states are changed

according to the following rule" (Zavalkovsky, col.8, lines 22-35). Hence,

Zavalkovsky teaches of comparing (i.e., Applicant's determining differences) to

determine a minimal set of basic commands between the two sets of basic

commands (e.g., the current configuration and the initial set of basic commands)

(i.e., Applicant's at least a part of a selected set of configuration information and

at least a part of a set of candidate configuration information).

However, Zavalkovsky does not explicitly disclose,

- *wherein the set of candidate configuration information for the data forwarding*

  device includes a plurality of statements,

- *wherein a first statement of the plurality of statements of the set of candidate*

  configuration information for the data forwarding device contains a second

  statement of the plurality of statements to define at least a part of a hierarchical

  configuration,

- *wherein the selected set of configuration information for the data forwarding*

  device includes a plurality of statements,

- *wherein a first statement of the plurality of statements of the selected set of*

  configuration information for the data forwarding device contains a second

statement of the plurality of statements to define at least a part of a hierarchical

configuration,

- *wherein the at least the part of the set of candidate configuration information only*

  includes a defined first statement and any of the plurality of statements that

  are descendants of the defined first statement in the hierarchical configuration,

  and

- *wherein the at least the part of the selected set of configuration information*

  includes a corresponding first statement and any of the plurality of statements

  that are descendants of the defined first statement in the hierarchical

  configuration.

Harvey teaches,

- *wherein the set of candidate configuration information for the data forwarding*

  device includes a plurality of statements, (Harvey, col.1, line 9 – col.36, line 11)

  Harvey discloses, *"As a specific example of information that may be provided*

  using the foregoing processes and mechanisms, Table 13 presents an example

  of an IOS network device configuration template, and Table 14 presents an

  example of the resulting XML format configuration information, including

  substitution of parameters" (Harvey, col.20, lines 61-66; table 13). Hence,

  Harvey teaches of the configuration (i.e., Applicant's set of candidate

  configuration information) of a router (i.e., Applicant's data forwarding device)

  including a plurality of statements.

- *wherein a first statement of the plurality of statements of the set of candidate*

  configuration information for the data forwarding device contains a second

statement of the plurality of statements to define at least a part of a hierarchical

configuration, (Harvey, col.1, line 9 – col.36, line 11)

Harvey discloses, *"As a specific example of information that may be provided*

using the foregoing processes and mechanisms, Table 13 presents an example

of an IOS network device configuration template, and Table 14 presents an

example of the resulting XML format configuration information, including

substitution of parameters" (Harvey, col.20, lines 61-66; table 13). Hence,

Harvey teaches of the hierarchical configuration wherein the *"interface"* level

statement includes sub-level statements of *"ip address", "ip route-cache",* etc.

- *wherein the selected set of configuration information for the data forwarding*

  device includes a plurality of statements, (Harvey, col.1, line 9 – col.36, line 11)

- *wherein a first statement of the plurality of statements of the selected set of*

  configuration information for the data forwarding device contains a second

  statement of the plurality of statements to define at least a part of a hierarchical

  configuration, (Harvey, col.1, line 9 – col.36, line 11)

- *wherein the at least the part of the set of candidate configuration information only*

  includes a defined first statement and any of the plurality of statements that

  are descendants of the defined first statement in the hierarchical configuration,

  and (Harvey, col.1, line 9 – col.36, line 11)

Harvey discloses, *"As a specific example of information that may be provided*

using the foregoing processes and mechanisms, Table 13 presents an example

of an IOS network device configuration template, and Table 14 presents an

example of the resulting XML format configuration information, including

substitution of parameters" (Harvey, col.20, lines 61-66; table 13). Hence,

Harvey teaches of the configuration (i.e., Applicant's set of candidate

configuration information) of a router (i.e., Applicant's data forwarding device)

including a plurality of statements. Harvey teaches of the hierarchical

configuration wherein the *"interface"* level statement includes sub-level

statements of *"ip address"*, *"ip route-cache"*, etc.

- *wherein the at least the part of the selected set of configuration information*

  includes a corresponding first statement and any of the plurality of statements

  that are descendants of the defined first statement in the hierarchical

  configuration. (Harvey, col.1, line 9 – col.36, line 11)

Therefore, it would have been obvious to one of ordinary skill in the art at the time of

the invention was made to combine the teachings of Harvey with the teachings of

Zavalkovsky to *"[provide] a new configuration that implements the policy are*

deployed to the device. The basic commands are expressed at a level of abstraction

lower than the abstract policy and higher than the CLI commands" (Zavalkovsky,

col.4, lines 15-18). In addition, Harvey discloses, *"Moreover, for certain businesses*

and institutions, there is a need for a means to send a partial configuration to the

network element to configure the network element for new services. Based on the

foregoing, there is also a clear need for an improved method of delivering

provisioning and configuration information to devices in the field" (Harvey, col.2, lines

25-31).

16.   With regard to *claims 2-3, 6-7, 17, and 29-30*, Zavalkovsky and Harvey disclose,

- *wherein the selected set of configuration information for a data forwarding device*

  is a most recently committed set of configuration information for the data

forwarding device. (Zavalkovsky, col.1, line 6 – col.18, line 55; Harvey, col.1, line

9 – col.36, line 11)

Zavalkovsky discloses, *"In block 316, the current configuration of each device is*

received and analyzed. Current device configuration information may be obtained

using a special CLI command (e.g., "show running config" on a Cisco router), or

by other conventional means, such as device discovery processes that use one

or more SNMP query messages to obtain MIB variable values. In block 318,

based on the current device configuration information received from the device,

the process determines one or more specific CLI commands that would create

such configuration if sent to and executed by the operating system of the device.

As a result, a list of CLI commands for the current device configuration is created

and stored" (Zavalkovsky, col.7, lines 56-67). Hence, Zavalkovsky teaches of

receiving (i.e., Applicant's accepting) the current configuration (i.e., Applicant's at

least a part of a selected set of configuration information) of each device (e.g.,

Cisco router) (i.e., Applicant's data forwarding device). It is well known in the

networking art that the current configuration (e.g., *"show running config"* on a

Cisco router) (i.e., Applicant's selected set of configuration information) is the

most current applied configuration.

- *wherein the selected set of configuration information for a data forwarding device*

  is selected by a user. (Zavalkovsky, col.1, line 6·– col.18, line 55; Harvey, col.1,

  line 9 – col.36, line 11)

- *wherein the defined first statement is defined based on a statement of the*

  hierarchical candidate configuration information on which a user is presently

working. (Zavalkovsky, col.1, line 6 – col.18, line 55; Harvey, col.1, line 9 –

col.36, line 11)

- *wherein the defined first statement is defined by a user input.* (Zavalkovsky,

  col.1, line 6 – col.18, line 55; Harvey, col.1, line 9 – col.36, line 11)

17.   With regard to *claims 8 and 18*, Zavalkovsky and Harvey disclose,

- *wherein the hierarchical configuration information includes at least two*

  categories at a first hierarchical level, and wherein the at least two categories are

  selected from a group of data forwarding device configuration categories

  consisting of: A) chassis configuration information; B) class-of-service

  configuration information; C) firewall configuration information; D) forwarding-

  options configuration information; E) groups configuration information; F)

  interfaces configuration information; G) policy-options configuration information;

  H) protocols configuration information; I) routing-instances configuration

  information; J) routing-options configuration information; K) network management

  protocol configuration information; and L) system configuration information.

  (Zavalkovsky, col.1, line 6 – col.18, line 55; Harvey, col.1, line 9 – col.36, line 11)

  Zavalkovsky discloses, *"In block 316, the current configuration of each device is*

  received and analyzed. Current device configuration information may be obtained

  using a special CLI command (e.g., "show running config" on a Cisco router), or

  by other conventional means, such as device discovery processes that use one

  or more SNMP query messages to obtain MIB variable values. In block 318,

  based on the current device configuration information received from the device,

  the process determines one or more specific CLI commands that would create

such configuration if sent to and executed by the operating system of the device.

As a result, a list of CLI commands for the current device configuration is created

and stored" (Zavalkovsky, col.7, lines 56-67). Hence, Zavalkovsky teaches of

receiving (i.e., Applicant's accepting) the current configuration (i.e., Applicant's at

least a part of a selected set of configuration information) of each device (e.g.,

Cisco router) (i.e., Applicant's data forwarding device). Harvey teaches of the

hierarchical configuration including the *"interface"* level (i.e., Applicant's

interfaces configuration information category) and the *"routing"* level (i.e.,

Applicant's routing-options configuration information).

18.   With regard to <u>claim 20</u>, Zavalkovsky and Harvey disclose,

- *wherein the first set of configuration information for a data forwarding*

  device includes a plurality of statements, at least some of which define parameter

  values, (Zavalkovsky, col.1, line 6 – col.18, line 55; Harvey, col.1, line 9 – col.36,

  line 11)

  Harvey discloses, *"As a specific example of information that may be provided*

  using the foregoing processes and mechanisms, Table 13 presents an example

  of an IOS network device configuration template, and Table 14 presents an

  example of the resulting XML format configuration information, including

  substitution of parameters" (Harvey, col.20, lines 61-66; table 13).

- *wherein the second set of configuration information for the data forwarding*

  device includes a plurality of statements, at least some of which define parameter

  values, and (Zavalkovsky, col.1, line 6 – col.18, line 55; Harvey, col.1, line 9 –

  col.36, line 11)

- *wherein the act of determining differences, if any, between the first set of configuration information for the data forwarding device, and the second set of configuration information for the data forwarding device, considers a selected one of (a) statements only, (b) parameter values only, and (c) statements and parameter values. (Zavalkovsky, col.1, line 6 – col.18, line 55; Harvey, col.1, line 9 – col.36, line 11)*

  Zavalkovsky discloses, *"Specifically, as shown by block 324, in the Merging and Aggregation phase 306, the two sets of basic commands that were created in the previous phases are compared to determine a minimal set of basic commands that will result in a new device configuration that both retains features of the current device configuration, and implements the abstract policy that was received in the Abstract Policy Translation phase 302. The initial list of basic commands and the list of uploaded basic commands are evaluated and merged, resulting in creating and storing a final list of basic commands, as shown by block 326. During the process of merging and evaluation in block 324, the basic commands from the two sets are compared and their states are changed according to the following rule"* (Zavalkovsky, col.8, lines 22-35).

19.   With regard to *claims 31-32*, Zavalkovsky and Harvey disclose,

- *wherein a command to save the first set of configuration information on the data forwarding device as a committed configuration has not occurred. (Zavalkovsky, col.1, line 6 – col.18, line 55; Harvey, col.1, line 9 – col.36, line 11)*

  Zavalkovsky discloses, *"As a result, an initial set of basic commands, implementing all abstract policies defined by the user, is created and stored, as*

shown by block 314. Block 314 also preferably involves assigning a state value

of each basic command object in the set, when each basic command object is

created. Basic commands in the final list that are created from the abstract

policies that were received in the Abstract Policy Translation phase 302 are

assigned the state value "DO."" (Zavalkovsky, col.7, lines 45-53).

- *wherein the first set of configuration information is from an uncommitted*

  candidate configuration, and wherein the second set of configuration information

  is from a configuration that has been saved on the data forwarding device as a

  committed configuration. (Zavalkovsky, col.1, line 6 – col.18, line 55; Harvey,

  col.1, line 9 – col.36, line 11)

Zavalkovsky discloses, *"As a result, an initial set of basic commands,*

implementing all abstract policies defined by the user, is created and stored, as

shown by block 314. Block 314 also preferably involves assigning a state value

of each basic command object in the set, when each basic command object is

created. Basic commands in the final list that are created from the abstract

policies that were received in the Abstract Policy Translation phase 302 are

assigned the state value "DO."" (Zavalkovsky, col.7, lines 45-53). Zavalkovsky

discloses, *"In block 316, the current configuration of each device is received and*

analyzed. Current device configuration information may be obtained using a

special CLI command (e.g., "show running config" on a Cisco router), or by other

conventional means, such as device discovery processes that use one or more

SNMP query messages to obtain MIB variable values. In block 318, based on the

current device configuration information received from the device, the process

determines one or more specific CLI commands that would create such

configuration if sent to and executed by the operating system of the device. As a

result, a list of CLI commands for the current device configuration is created and

stored" (Zavalkovsky, col.7, lines 56-67).

20.   <u>Claim 9</u> is rejected under 35 U.S.C. 103(a) as being unpatentable over Zavalkovsky et

al. (US006959332B1), in view of Harvey et al. (US007054924B1), and further in view of

Golla (US006587874B1).

21.   With regard to <u>claim 9</u>, Zavalkovsky and Harvey disclose,

   See *claim 4* rejection as detailed above.

   However, Zavalkovsky and Harvey do not explicitly disclose,

   • *wherein the hierarchical configuration information includes at least two*

      categories at a given hierarchical level, the method further comprising: d)

      associating a predetermined permission value with a user that is logged in; and

      e) determining whether the logged in user is permitted to access one of the at

      least two categories of configuration information based on the predetermined

      permission.

   Golla teaches,

   • *wherein the hierarchical configuration information includes at least two*

      categories at a given hierarchical level, the method further comprising: d)

      associating a predetermined permission value with a user that is logged in; and

      e) determining whether the logged in user is permitted to access one of the at

      least two categories of configuration information based on the predetermined

      permission. (Golla, col.1, line 6 – col.16, line 61)

Golla discloses, *"Examples of configuration parameters required for typical network devices include access filters (e.g. for firewalls), quality of service parameters (e.g., for traffic shaping), route information, etc. Specifically, such configuration parameters may include global router configuration commands such as, for example, protocol routing/activation, user access and privileges, protocol process activation, and access lists. The configuration parameters may also include interface specific configuration commands such as, for example, interface type (e.g., ISDN, ethernet, token ring, serial), interface encapsulation (e.g., ARPA, frame relay, PPP), interface state (e.g., up/down, etc.), interface protocol. Protocol specific configuration commands may also be included among the configuration parameters including, for example, protocol parameters and resources. Network device 12 may be any type of device that requires configuration and is attached to a network. Common examples include routers, switches, cable modem termination systems, dial access servers, voice gateways, PBX, access routers, concentrators, WAN switches, etc. In a preferred embodiment, such devices run an operating system or application that allows them to communicate via the LDAP protocol. Note that the configuration process of this invention is not limited to devices devoted entirely to routing or otherwise controlling network traffic. The invention may also apply to work stations, personal computers, laptop computers, and other such devices that need to be configured and are connected via a network"* (Golla, col.3, line 54 – col.4, line 14). Hence, Golla teaches of user access and privileges (i.e., Applicant's predetermined permission value and access).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of

the invention was made to combine the teachings of Golla with the teachings of

Zavalkovsky and Harvey to *"[provide] a new configuration that implements the policy*

are deployed to the device. The basic commands are expressed at a level of

abstraction lower than the abstract policy and higher than the CLI commands"

(Zavalkovsky, col.4, lines 15-18). In addition, Harvey discloses, *"Moreover, for*

certain businesses and institutions, there is a need for a means to send a partial

configuration to the network element to configure the network element for new

services. Based on the foregoing, there is also a clear need for an improved method

of delivering provisioning and configuration information to devices in the field"

(Harvey, col.2, lines 25-31).

22.   *Claims 10, 13, 22, 25-28, and 33* are rejected under 35 U.S.C. 103(a) as being

unpatentable over Malik et al. (US006349306B1) and in view of what was well known in

the art.

23.   With regard to *claim 10*, Malik discloses,

*   *accepting at least a part of a selected set of configuration information for a data*

    forwarding device; (Malik, col.1, line 15 – col.2, line 45; col.3, line 10 – col.4, line

    15; col.5, line 11 – col.6, line 47; col.8, line 35 – col.9, line 31; fig.1)

    Malik discloses, *"a method and apparatus for configuration management of a*

    communications network, and which performs one or more of the following

    functions... enables retrieval of a configuration from a device" (Malik, col.1, line

62 – col.2, line 1). Hence, Malik teaches of retrieving configuration for a network

device (e.g., routers, bridges, hubs, etc.).

- *accepting at least a part of a set of candidate configuration information for the*

  data forwarding device; and (Malik, col.1, line 15 – col.2, line 45; col.3, line 10 –

  col.4, line 15; col.5, line 11 – col.6, line 47; col.8, line 35 – col.9, line 31; fig.1)

  Malik discloses, *"the configuration manager then enables a system administrator,*

  via a user interface (see FIG.2), to use this information to manage the device.

  For example, the administrator may create new configurations" (Malik, col.3, lines

  18-21) and that *"item 41 is the corresponding configuration for 'new_config',*

  which includes a list of attributes on the left and corresponding values on the

  right" (Malik, col.3, lines 49-51). In addition, according to Malik, *"the resulting*

  configuration created with the template contains the attributes from the template

  and the values collected from the model. The configuration may be stored in the

  configuration manager, in another storage device, or the Spectrum database"

  (Malik, col.3, lines 41-45). Hence, Malik teaches of receiving the user configured

  'new_config' from the configuration manager or another storage device.

- *determining differences, if any, between the at least a part of the set of candidate*

  configuration information for the data forwarding device, and the at least a part of

  the selected set of configuration information for the data forwarding device,

  (Malik, col.1, line 15 – col.2, line 45; col.3, line 10 – col.4, line 15; col.5, line 11 –

  col.6, line 47; col.8, line 35 – col.9, line 31; fig.1)

  Malik discloses, *"a verification (step 87), [where] the configuration manager first*

  captures the actual configuration of the model and compares each attribute/value

  pair in the configuration with the current model's actual configuration" (Malik,

col.9, lines 22-25). In addition, Malik claimed, *"the method of claim 1, further including the step of verifying the configuration of a device by comparing the model and the configuration record"* (Malik, col.11, lines 21-23). Hence, Malik teaches verifying (i.e., comparing) the current configuration information from the network device with the newly created configuration from the configuration manager or storage device.

- *wherein the act of accepting at least a part of a selected set of configuration information for a data forwarding device is performed by accessing a storage device of the data forwarding device,* (Malik, col.1, line 15 – col.2, line 45; col.3, line 10 – col.4, line 15; col.5, line 11 – col.6, line 47; col.8, line 35 – col.9, line 31; fig.1)

Malik discloses, *"a method and apparatus for configuration management of a communications network, and which performs one or more of the following functions… enables retrieval of a configuration from a device"* (Malik, col.1, line 62 – col.2, line 1). Hence, Malik teaches of retrieving configuration for a network device (e.g., routers, bridges, hubs, etc.).

- *wherein the act of accepting at least a part of a set of candidate configuration information for the data forwarding device is performed by accessing a storage device; and* (Malik, col.1, line 15 – col.2, line 45; col.3, line 10 – col.4, line 15; col.5, line 11 – col.6, line 47; col.8, line 35 – col.9, line 31; fig.1)

Malik discloses, *"the configuration manager then enables a system administrator, via a user interface (see FIG.2), to use this information to manage the device. For example, the administrator may create new configurations"* (Malik, col.3, lines 18-21) and that *"item 41 is the corresponding configuration for 'new_config',*

which includes a list of attributes on the left and corresponding values on the right" (Malik, col.3, lines 49-51). In addition, according to Malik, *"the resulting configuration created with the template contains the attributes from the template and the values collected from the model. The configuration may be stored in the configuration manager, in another storage device, or the Spectrum database"* (Malik, col.3, lines 41-45). Hence, Malik teaches of receiving the user configured 'new_config' from the configuration manager or another storage device.

* *wherein the act of determining differences, if any, between the at least the part of the set of candidate configuration information for the data forwarding device, and the at least the part of the selected set of configuration information for the data forwarding device,* (Malik, col.1, line 15 – col.2, line 45; col.3, line 10 – col.4, line 15; col.5, line 11 – col.6, line 47; col.8, line 35 – col.9, line 31; fig.1) Malik discloses, *"a verification (step 87), [where] the configuration manager first captures the actual configuration of the model and compares each attribute/value pair in the configuration with the current model's actual configuration"* (Malik, col.9, lines 22-25). In addition, Malik claimed, *"the method of claim 1, further including the step of verifying the configuration of a device by comparing the model and the configuration record"* (Malik, col.11, lines 21-23). Hence, Malik teaches verifying (i.e., comparing) the current configuration information from the network device with the newly created configuration from the configuration manager or storage device.

Including wherein,

* *is performed by a component of the data forwarding device.*

Examiner takes Official Notice (see MPEP 2144.03 Reliance on "Well Known"

Prior Art) that the concept and advantages of *"configuring and utilizing computing*

devices such as computers or servers as forwarding devices" was well-known

and expected/a well-known practice/a well-known standard in the art at the time

of invention. In particular, it is well known in the networking art that a computing

device (e.g., a client computer or server) can be configured and designated as a

routing device similar to a router with the use of multiple NIC cards. Hence, a

regular computer with multiple NIC cards installed can act as a routing device in

addition to performing the installed applications.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of

the invention was made to combine the teachings of Malik with common knowledge

in the networking art to present a computing device capable of comparing and

determining the differences between the current running configuration performing the

routing function of the computer and the potential replacement configuration, while

performing routing functions at the same time. According to Malik, disadvantage of

prior methods *"is that one cannot retrieve or store information regarding the*

configuration of a device" (Malik, col.1, lines 32-35) and that *"one cannot configure*

different device types simultaneously" (Malik, col1, lines 38-39). In addition, Malik

discloses, *"the prior art methods are time-consuming, expensive, error prone, and*

limited in terms of the operations that can be performed" (Malik, col.1, lines 57-59).

24.   With regard to *claims 13, 22, and 25-26*, Malik discloses,

- *a storage device for storing at least one set of configuration information for the*

  data forwarding device; (Malik, col.1, line 15 – col.2, line 45; col.3, line 10 – col.4,

  line 15; col.5, line 11 – col.6, line 47; col.8, line 35 – col.9, line 31; fig.1)

  Malik discloses, *"the configuration manager then enables a system administrator,*

  via a user interface (see FIG.2), to use this information to manage the device.

  For example, the administrator may create new configurations" (Malik, col.3, lines

  18-21) and that *"item 41 is the corresponding configuration for 'new_config',*

  which includes a list of attributes on the left and corresponding values on the

  right" (Malik, col.3, lines 49-51). In addition, according to Malik, *"the resulting*

  configuration created with the template contains the attributes from the template

  and the values collected from the model. The configuration may be stored in the

  configuration manager, in another storage device, or the Spectrum database"

  (Malik, col.3, lines 41-45). Hence, Malik teaches of receiving the user configured

  'new_config' from the configuration manager or another storage device.

- *an input facility for*

  - *accepting at least a part of a selected one of the at least one set of*

    configuration information for a data forwarding device; (Malik, col.1, line 15 –

    col.2, line 45; col.3, line 10 – col.4, line 15; col.5, line 11 – col.6, line 47; col.8,

    line 35 – col.9, line 31; fig.1)

    Malik discloses, *"a method and apparatus for configuration management of a*

    communications network, and which performs one or more of the following

    functions... enables retrieval of a configuration from a device" (Malik, col.1,

    line 62 – col.2, line 1). Hence, Malik teaches of retrieving configuration for a

    network device (e.g., routers, bridges, hubs, etc.).

- *accepting at least a part of a set of candidate configuration information for the data forwarding device; and (Malik, col.1, line 15 – col.2, line 45; col.3, line 10 – col.4, line 15; col.5, line 11 – col.6, line 47; col.8, line 35 – col.9, line 31; fig.1)*

  Malik discloses, *"the configuration manager then enables a system administrator, via a user interface (see FIG.2), to use this information to manage the device. For example, the administrator may create new configurations"* (Malik, col.3, lines 18-21) and that *"item 41 is the corresponding configuration for 'new_config', which includes a list of attributes on the left and corresponding values on the right"* (Malik, col.3, lines 49-51). In addition, according to Malik, *"the resulting configuration created with the template contains the attributes from the template and the values collected from the model. The configuration may be stored in the configuration manager, in another storage device, or the Spectrum database"* (Malik, col.3, lines 41-45). Hence, Malik teaches of receiving the user configured 'new_config' from the configuration manager or another storage device.

- *a configuration comparison facility for determining differences, if any, between the at least a part of the set of candidate configuration information for the data forwarding device, and the at least a part of the selected one of the at least one set of configuration information for the data forwarding device, (Malik, col.1, line 15 – col.2, line 45; col.3, line 10 – col.4, line 15; col.5, line 11 – col.6, line 47; col.8, line 35 – col.9, line 31; fig.1)*

Malik discloses, *"a verification (step 87), [where] the configuration manager first captures the actual configuration of the model and compares each attribute/value pair in the configuration with the current model's actual configuration"* (Malik, col.9, lines 22-25). In addition, Malik claimed, *"the method of claim 1, further including the step of verifying the configuration of a device by comparing the model and the configuration record"* (Malik, col.11, lines 21-23). Hence, Malik teaches verifying (i.e., comparing) the current configuration information from the network device with the newly created configuration from the configuration manager or storage device.

Including wherein,

- *In a data forwarding device,*

  Examiner takes Official Notice (see MPEP 2144.03 Reliance on "Well Known" Prior Art) that the concept and advantages of *"configuring and utilizing computing devices such as computers or servers as forwarding devices"* was well-known and expected/a well-known practice/a well-known standard in the art at the time of invention. In particular, it is well known in the networking art that a computing device (e.g., a client computer or server) can be configured and designated as a routing device similar to a router with the use of multiple NIC cards. Hence, a regular computer with multiple NIC cards installed can act as a routing device in addition to performing the installed applications.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teachings of Malik with common knowledge in the networking art to present a computing device capable of comparing and determining the differences between the current running configuration performing the

routing function of the computer and the potential replacement configuration, while

performing routing functions at the same time. According to Malik, disadvantage of

prior methods *"is that one cannot retrieve or store information regarding the*

configuration of a device" (Malik, col.1, lines 32-35) and that *"one cannot configure*

different device types simultaneously" (Malik, col1, lines 38-39). In addition, Malik

discloses, *"the prior art methods are time-consuming, expensive, error prone, and*

limited in terms of the operations that can be performed" (Malik, col.1, lines 57-59).

25.   With regard to *claims 27-28*, Malik and what was well known in the art disclose,

- *wherein the selected set of configuration information for a data forwarding device*

   is a most recently committed set of configuration information for the data

   forwarding device. (Malik, col.1, line 15 – col.2, line 45; col.3, line 10 – col.4, line

   15; col.5, line 11 – col.6, line 47; col.8, line 35 – col.9, line 31; fig.1)

   Malik discloses, *"a method and apparatus for configuration management of a*

   communications network, and which performs one or more of the following

   functions... enables retrieval of a configuration from a device" (Malik, col.1, line

   62 – col.2, line 1), which has to be the most recently committed configuration, or,

   in other words, the currently running configuration of the network device.

- *wherein the selected set of configuration information for a data forwarding device*

   is selected by a user. (Malik, col.1, line 15 – col.2, line 45; col.3, line 10 – col.4,

   line 15; col.5, line 11 – col.6, line 47; col.8, line 35 – col.9, line 31; fig.1)

26.   With regard to *claim 33*, Malik and what was well known in the art disclose,

- *wherein the candidate set of configuration information is an uncommitted candidate configuration, and* (Malik, col.1, line 15 – col.2, line 45; col.3, line 10 – col.4, line 15; col.5, line 11 – col.6, line 47; col.8, line 35 – col.9, line 31; fig.1) Malik discloses, *"the resulting configuration created with the template contains the attributes from the template and the values collected from the model. The configuration may be stored in the configuration manager, in another storage device, or the Spectrum database"* (Malik, col.3, lines 41-45). Hence, Malik teaches of receiving the user configured 'new_config' from the configuration manager or another storage device. This means that the newly created 'new_config' has not been loaded onto the network device.

- *wherein the selected set of configuration information is a configuration that has been saved on the data forwarding device as a committed configuration.* (Malik, col.1, line 15 – col.2, line 45; col.3, line 10 – col.4, line 15; col.5, line 11 – col.6, line 47; col.8, line 35 – col.9, line 31; fig.1)
  Malik discloses, *"a method and apparatus for configuration management of a communications network, and which performs one or more of the following functions… enables retrieval of a configuration from a device"* (Malik, col.1, line 62 – col.2, line 1), which has to be the most recently committed configuration, or, in other words, the currently running configuration of the network device.

Response to Arguments

27.   Applicant's arguments with respect to traversing the restriction requirement have been considered but moot in view of the new ground(s) of rejection.

Conclusion

28.   Any inquiry concerning this communication or earlier communications from the examiner

should be directed to Thomas Duong whose telephone number is 571/272-3911. The

examiner can normally be reached on M-F 7:30AM - 4:00PM. If attempts to reach the

examiner by telephone are unsuccessful, the examiner's supervisor, Jason D. Cardone

can be reached on 571/272-3933. The fax phone numbers for the organization where

this application or proceeding is assigned are 571/273-8300 for regular communications

and 571/273-8300 for After Final communications.

Thomas Duong (AU2145)

March 17, 2008

/Jason D Cardone/
Supervisory Patent Examiner, Art Unit 2145